

CONSTRAINTS FACED BY URBAN DWELLERS IN THE ADOPTION OF TERRACE GARDENING PRACTICES

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ABSTRACT

The emergence of terrace gardening act as a focal point for urban greening and also ensures food security and food safety. This paper assesses the constraints faced by the terrace gardeners so that it can be a cue for the State Horticulture Department and other organizations working in the expansion of terrace gardening in urban areas for its further development. The study was conducted in Chennai district of Tamil Nadu. A total of 120 respondents were surveyed using a snowball sampling method. Pre-tested interview schedule was used in the study to collect data. The constraints were ranked by the respondents and the results were interpreted using Garrett ranking. From the findings, it was found that lack of sufficient time to maintain the terrace garden, damage to plants by pest and diseases, and by birds and animals and scorching of plants due to too much sunlight was quoted as the major constraints experienced by the terrace gardeners. It was suggested also that awareness must be provided through various extension approaches to the urban dwellers in order to meet the daily requirement of vegetables for a healthy life and to promote food security in the household level.

KEYWORDS: Terrace Garden, Constraints, Urban Dwellers & Chennai District

Original Article

Received: Mar 21, 2019; **Accepted:** Apr 11, 2019; **Published:** May 06, 2019; **Paper Id.:** IJASRJUN201922

INTRODUCTION

Over the past few years, the agriculture sector of the country has been facing lots of obstacles. The GDP contribution of the agricultural sector has fallen from 22.3 % in 2001 to 13.9% in 2015. The main cause was due to the initial stage of transformation of the Indian economy from agriculture to industrial and service sectors (Tripathi et.al, 2017). This transformation was accompanied by boosting urbanization which has resulted in the conversion of agriculture lands to concrete buildings. Owing to urbanization and industrialization, the cultivable land in Tamil Nadu has shrunk by 5 lakh hectares from 2001 to 2011. This decrease in the land area has turned the focus towards food security rather than food safety. Hence in order to increase the productivity chemical fertilizers and pesticides were applied at a higher rate which has led to ecological imbalance. But in today's scenario, the focus is shifting towards food safety. According to the 12th five year Plan of Tamil Nadu, "restructuring the urban land use planning can be a trusted area to ensure higher productivity". This shows the trust laid on urban agriculture to promote food security and food safety. The social benefits of urban agriculture include increased access to green

spaces, the promotion of food security, community development, and the spread of nutritional awareness (Satterlee, 2015).

In urban areas, open spaces available above the buildings can be utilized for plantations and gardens since there was a lack of ground space. This practice was defined as terrace gardening or rooftop gardening. Since terrace gardening involves more of local production of horticultural crops, it can cut short the demand for urban dwellers and acts as a shortcut for urban greening (Surendranath et.al, 2012). Considering the importance of terrace garden the state horticulture department and various other organizations are promoting terrace gardening in the urban area. In order to promote further adoption of terrace gardening, the real constraints faced by terrace gardeners must be identified. Hence the present study was focused on the constraints faced by urban dwellers in the adoption of terrace gardening practices.

METHODOLOGY

The study was conducted in the Chennai district of Tamil Nadu based on more number of urban dwellers practicing terrace gardening. Moreover, there is no official data existing regarding the area having a large proportion of terrace gardeners. Hence, the Chennai district as a whole was selected as the study area. Snowball sampling was used in this study to trace the respondents. The data were collected from 120 urban terrace gardeners using a pre-tested interview schedule and was analyzed using Garrett ranking method.

The possible constraints faced by the respondents in practicing terrace gardening was identified by referring relevant literature, discussing with scientists and terrace gardeners of non-sample areas. By this way, 10 constraints were identified and were administered by the respondents by means of Garrett ranking.

FINDINGS AND DISCUSSIONS

It was believed that lesser the constraints greater will be the adoption of a practice. Hence the study on constraints faced by terrace gardeners was felt necessary. The problems faced by the terrace gardeners are presented in table 1.

Table 1: Distribution of Respondents Based on the Constraints Faced in the Adoption of Terrace Gardening Practices

S. No.	Constraints	Mean score	Rank
1.	Lack of sufficient time to maintain the terrace garden	60.00	1
2.	Difficulty in bringing the inputs from ground to terrace	42.50	5
3.	Increase the load on the roof may result in damage to building	30.00	6
4.	Leakage problem and damage to ceiling	11.67	10
5.	Lack of space for further expansion of terrace garden	28.33	7
6.	High cost in the adoption of modern technologies	19.17	9
7.	Damage to plants due to pest and diseases incidence	59.17	2
8.	Damage to plants by birds and animals	50.00	3
9.	Scorching of plants due to too much sunlight	45.83	4
10.	Lack of support from family	27.50	8

It could be drawn from the table 1 that among the constraints, lack of sufficient time to maintain terrace garden (60.00) was given first ranked by the terrace gardeners. This constraint was felt inevitable since most of the terrace gardeners were employed and have to attend their daily routine works. Also, most of the respondents in the study area were employed in the private sector. Hence they find difficult to spend much time in terrace gardening activities. This might be the possible reason for lack of time as a constraint. However, time constraint can be checked to some extent by growing low maintenance plants and with the help of family members.

Damage to plants due to pest and diseases incidence was ranked as the second with a mean score of 59.17. Due to health consciousness, most of the terrace gardeners go for an organic method of cultivation. Organic methods take longer time to control pest and diseases when compared to the chemical method. It should also be noted that the organic method of pest and disease control works effectively when adopted as a preventive measure than as control measure. Addition to this, lack of knowledge on specific control measure for specific pest or disease should also be the possible reason for the constraint.

Damage to plants by birds and animals was the third most important constraint ranked by the terrace gardeners with a mean score of 50.00. Since in terrace garden the plants are grown in the roof there was a high incidence of damage by the avian pest. Apart from birds; squirrels, rat and sometimes monkeys also cause damage to the plants. Some of the terrace gardeners were found to adopted practices like placing alternate feed and providing net protection to plants in order to prevent damage by birds and squirrels; and placing trap and camphor plant to avoid rat damage. These measures were found successful to some degree. Hence this constraint was ranked third among the rest by the respondents.

Scorching of plants due to too much sunlight (45.83) was ranked fourth among the constraints. Compared to ground surface heat on the terrace will be high due to reflection from the concrete floor. Whereas, in case of surface gardens like backyard gardens the ground was covered by soil, hence not much heat effect was left on plants. Apart from this some of the respondents also face scorching of the plant due to heavy dew. Lack of knowledge and failure to provide shades to plant could be the possible reason for this constraint.

The fifth constraint ranked by the terrace gardeners was difficulty in bringing inputs from ground to terrace with a mean score of 42.50. In the urban area, most of the buildings were two to four-story buildings and in the terrace garden, everything was done above the building. Hence the terrace gardener must move upstairs and downstairs to carry gardening materials and to execute gardening activities which becomes a lot difficult when a heavy and large volume of materials like sand, pots, plants etc. had to take to the terrace. Lift and pulley like arrangements can be made to use in case of high difficulty.

Increased load on the roof was ranked sixth among the constraint faced by the terrace gardeners with a mean score of 30.00. It was an important factor to be considered since an increase in the roof load beyond its bearing capacity may pose a threat to the life of inhabitants. This constraint was widely cited by the respondents who practiced a terrace garden in a large space; and use heavy weighted pots and media. Failure to adopt lightweight media and pots might be the possible reason for the constraint.

Since the space available in the terrace of the home was fixed, expansion of the terrace garden beyond the available space was not possible. Hence lack of space for further expansion of the terrace garden (28.33) after the utilization of terrace space was ranked as the seventh constraint by the terrace gardeners. By utilizing the vertical space i.e., adoption of vertical garden can aid in the expansion of the terrace garden.

In urban area, gardening was predominantly done out of interest and love for nature. The same way interest for gardening among the family members was also considered necessary for the adoption of the terrace garden. Without family support, the successful adoption of terrace gardening will be difficult. Hence lack of support from family (27.50) was ranked eighth among the constraints. Employment of labor or adoption of terrace garden at a small scale can help overcome a lack of family support.

High cost involved in the adoption of modern technologies was quoted as the ninth constraint with a mean score of 19.17. Adoption of modern technologies increases the input cost of gardening. It was not necessary that modern technologies must be adopted in the terrace garden. Hence most of the terrace gardeners prefer to adopt locally available resources as a replacement for modern technologies. Lack of sufficient knowledge on these alternate resources was responsible for this constraint.

Leakage problem and damage to ceiling (11.67) was considered as the tenth important constraint by the terrace gardeners. This constraint was exclusive for terrace gardeners. Failure to adopt roof protection measures and stagnation of water in the terrace leads to leakage problem and may cause damage to the ceiling. Lack of proper knowledge and neglect to adopt proper drainage facility in the terrace was responsible for this constraint. Proper awareness must be provided to rectify the constraint.

CONCLUSIONS

The study revealed that the predominant constraints experienced by the terrace gardeners were lack of sufficient time to maintain terrace garden, damage to plants due to pest and disease incidence, damage to plants by birds and animals and scorching of plants due to too much sunlight. These results should be taken into account by the State Horticulture Department and other organizations which are working towards promotion of terrace gardening. It was also suggested that like farming, horticulture officers should inspect terrace gardens and provide recommendation for its improvement. By this way, terrace gardening has the possibility of emerging as a new type of employment with the added benefit of serving as a source for fresh and safe food. Moreover, it was projected that the vegetable demand was increasing at a rate of 3% per annum while the production was decreasing from 7.8% (2010- 2011) to 2.1% (2015- 2016) (Kumar P et. al., 2016). Hence we are in a position to increase the cultivation of vegetables in order to meet the requirement of the growing population and to attain food security. This can be ensured by motivating urban terrace gardening par side with other urban gardening practices.

REFERENCES

1. State Planning Commission. (2012). *Twelfth five year plan of Tamil Nadu, 2012- 2017 overview*.
2. Surendranath, R., SharathKumar, M. & Nandha Kumar, N. (2012). *Terrace garden a boon for greening India. Conference paper: International Conference on Agricultural & Horticultural Sciences*.
3. Satterlee Kristina. (2015). *Cultivating Sustainable Cities: A Comparative Study of Urban Agriculture in Mumbai, India and New York City, USA. Environmental Studies Honors Papers. 13*.
4. Kumar, P., P K Joshi & Mittal, S. (2016). *Demand vs Supply of Food in India - Futuristic Projection. Proceedings of Indian National Science Academy. 82 No. 5 pp. 1579-1586*
5. Das, A. (2015). *Soil Fertility Capability Classification as Management Options to remediate Plant Growth and Production Related Constraints of Some Subtropical Soils on Varying Parent Materials and Altitude. International Journal of Agriculturaql Science and Research, 5(1), 115-124*.
6. Tripathi, S. & Rani, C. (2017). *The impact of agricultural activities on urbanization: Evidence and implications for India. Department of Economics, Lovely Professional University. MPRA Paper No. 76213*.